

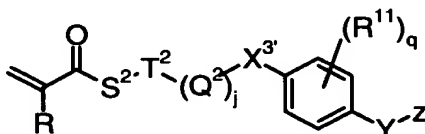
IN THE CLAIMS:

The present listing of claims replaces all prior versions, and listings of claims in the application.

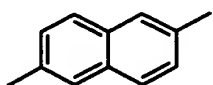
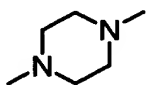
Claim 1. (Currently Amended) An optical recording material for at least one of binary, multibit and volume data storage, comprising:

- (a) at least one dyestuff selected from polymeric azo dyestuffs, said dyestuff changing its spatial arrangement upon irradiation with polarized electromagnetic radiation;
- (b) a polymer comprising at least one residue of a monomer having form anisotropy represented by the following formula (IV),

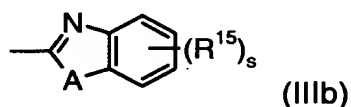
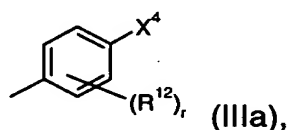
(IV)



wherein,

- R is hydrogen or methyl,
- S² is a divalent linking group selected from the group consisting of -O-, -S- or -NR⁹-,
- T² is a divalent -(CH₂)_p- group that is optionally interrupted by a divalent linking group selected from the group consisting of -O-, -NR⁹- and -OSiR¹⁰₂O-,
- p being an integer from 2 to 12,
- Q² is a divalent linking group selected from the group consisting of -O-, -S-, -(N-R⁵)-, -C(R⁶R⁷)-, -(C=O)-, -(CO-O)-, -(CO-NR⁵)-, -(SO₂)-, -(SO₂-O)-, -(SO₂-NR⁵)-, -(C=NR⁸)-, -(CNR⁸-NR⁵)-,
 -(CH₂)_p-, p-C₆H₄-, m-C₆H₄-,  and ,
 -O-, -S-, -(N-R⁵)-, -C(R⁶R⁷)-, -(C=O)-, -(CO-O)-, -(CO-NR⁵)-,
- j is an integer from 0 to 4, provided that when j is greater than 1, Q² is selected independently for each j,
- X^{3'} is a divalent linking group selected from the group consisting of -O-, -S-, -(N-R⁵)-, -C(R⁶R⁷)-, -(C=O)-, -(CO-O)-, -(CO-NR⁵)-,

- $-(SO_2)-$, $-(SO_2-O)-$, $-(SO_2-NR^5)-$, $-(C=NR^8)-$ and $-(CNR^8-NR^5)-$,
 R^{11} is selected from the group consisting of hydrogen, halogen, cyano, nitro, C_1 - to C_{20} -alkyl, C_1 - to C_{20} -alkoxy, phenoxy, C_3 - to C_{10} -cycloalkyl, C_2 - to C_{20} -alkenyl or C_6 - to C_{10} -aryl, C_1 - to C_{20} -alkyl-(C=O)-, C_6 - to C_{10} -aryl-(C=O)-, C_1 - to C_{20} -alkyl-(SO_2)-, C_1 - to C_{20} -alkyl-(C=O)-O-, C_1 - to C_{20} -alkyl-(C=O)-NH-, C_6 - to C_{10} -aryl-(C=O)-NH-, C_1 - to C_{20} -alkyl-O-(C=O)-, C_1 - to C_{20} -alkyl-NH-(C=O)- and C_6 - to C_{10} -aryl-NH-(C=O)-,
 q is an integer from 0 to 4, provided that when q is greater than 1, R^{11} is selected independently for each q ,
 Y is a divalent linking group selected from the group consisting of $-COO-$, $-OCO-$, $-CONH-$, $-NHCO-$, $-CON(CH_3)-$, $-N(CH_3)CO-$, $-O-$, $-NH-$ and $-N(CH_3)-$, and
 Z is a member selected from the group consisting of formulas (IIIa) and (IIIb)



wherein,

X^4 is $X^{4'}-R^{13}$,

$X^{4'}$ is a divalent linking group selected from the group consisting of $-O-$, $-S-$, $-(N-R^5)-$, $-C(R^6R^7)-$, $-(C=O)-$, $-(CO-O)-$, $-(CO-NR^5)-$, $-(SO_2)-$, $-(SO_2-O)-$, $-(SO_2-NR^5)-$, $-(C=NR^8)-$ and $-(CNR^8-NR^5)-$, and

R^{13} is selected from the group consisting of hydrogen, C_1 - to C_{20} -alkyl, C_3 - to C_{10} -cycloalkyl, C_2 - to C_{20} -alkenyl, C_6 - to C_{10} -aryl, C_1 - to C_{20} -alkyl-(C=O)-,

C₃- to C₁₀-cycloalkyl-(C=O)-,
 C₂- to C₂₀-alkenyl-(C=O)-, C₆- to C₁₀-aryl-(C=O)-,
 C₁- to C₂₀-alkyl-(SO₂)-, C₃- to C₁₀-cycloalkyl-(SO₂)-,
 C₂- to C₂₀-alkenyl-(SO₂)- and
 C₆- to C₁₀-aryl-(SO₂)-,

R¹² is selected from the group consisting of hydrogen, halogen, cyano, nitro, C₁- to C₂₀-alkyl, C₁- to C₂₀-alkoxy, phenoxy, C₃- to C₁₀-cycloalkyl, C₂- to C₂₀-alkenyl, C₆- to C₁₀-aryl, C₁- to C₂₀-alkyl-(C=O)-, C₆- to C₁₀-aryl-(C=O)-, C₁- to C₂₀-alkyl-(SO₂)-, C₁- to C₂₀-alkyl-(C=O)-O-, C₁- to C₂₀-alkyl-(C=O)-NH-, C₆- to C₁₀-aryl-(C=O)-NH-, C₁- to C₂₀-alkyl-O-(C=O)-, C₁- to C₂₀-alkyl-NH-(C=O)- and C₆- to C₁₀-aryl-NH-(C=O)-,

r is an integer from 0 to 4, provided that when r is greater than 1, R¹² is selected independently for each r,

A is selected from the group consisting of O, S and N-C₁- to C₄-alkyl, and

R¹⁵ is selected from the group consisting of hydrogen, halogen, cyano, nitro, C₁- to C₂₀-alkyl, C₁- to C₂₀-alkoxy, phenoxy, C₃- to C₁₀-cycloalkyl, C₂- to C₂₀-alkenyl, C₆- to C₁₀-aryl, C₁- to C₂₀-alkyl-(C=O)-, C₆- to C₁₀-aryl-(C=O)-, C₁- to C₂₀-alkyl-(SO₂)-, C₁- to C₂₀-alkyl-(C=O)-O-, C₁- to C₂₀-alkyl-(C=O)-NH-, C₆- to C₁₀-aryl-(C=O)-NH-, C₁- to C₂₀-alkyl-O-(C=O)-, C₁- to C₂₀-alkyl-NH-(C=O)- and C₆- to C₁₀-aryl-NH-(C=O)-,

s is an integer from 0 to 4, provided that when s is greater than 1, R¹⁵ is selected independently for each s,

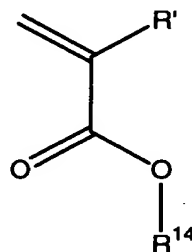
further wherein,

R⁵ and R⁸ are each independently selected from the group consisting of hydrogen, C₁- to C₂₀-alkyl, C₃- to C₁₀-cycloalkyl, C₂- to C₂₀-alkenyl, C₆- to C₁₀-aryl, C₁- to C₂₀-alkyl-(C=O)-, C₃- to C₁₀-cycloalkyl-(C=O)-, C₂- to C₂₀-alkenyl-(C=O)-, C₆- to C₁₀-aryl-(C=O)-, C₁- to C₂₀-alkyl-(SO₂)-, C₃- to C₁₀-cycloalkyl-(SO₂)-, C₂- to C₂₀-alkenyl-(SO₂)- and C₆- to C₁₀-aryl-(SO₂)-.

R⁶ and R⁷ are each independently selected from the group consisting of hydrogen, halogen, C₁- to C₂₀-alkyl, C₁- to C₂₀-alkoxy, C₃- to C₁₀-cycloalkyl, C₂- to C₂₀-alkenyl and C₆- to C₁₀-aryl.

R⁹ is selected from the group consisting of hydrogen, methyl, ethyl and propyl, and

R¹⁰ is selected from the group consisting of methyl and ethyl,
said polymer (b) optionally further comprising monomer residues represented by the following formula (V),



wherein,

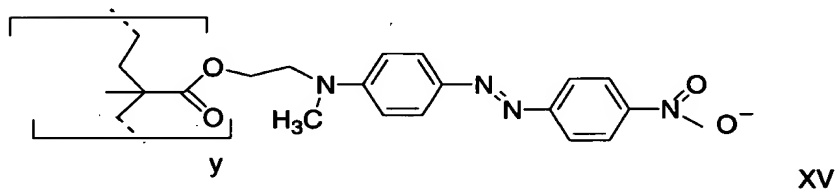
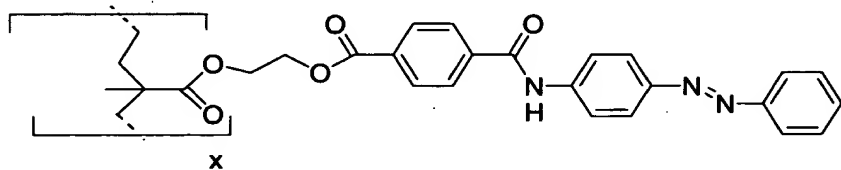
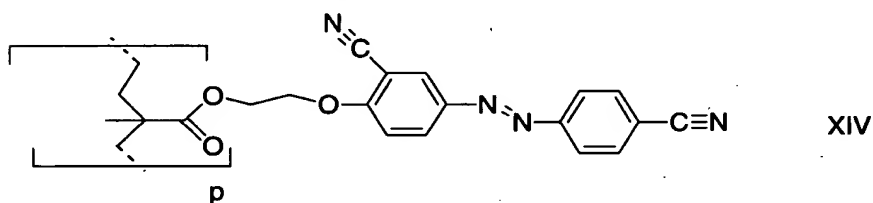
R' is hydrogen or methyl, and

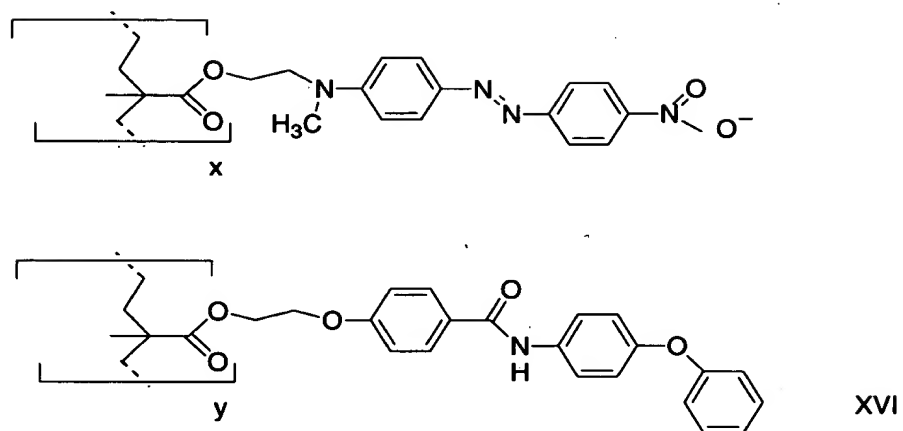
R¹⁴ is a linear or branched C₁- to C₂₀-alkyl group,

wherein,

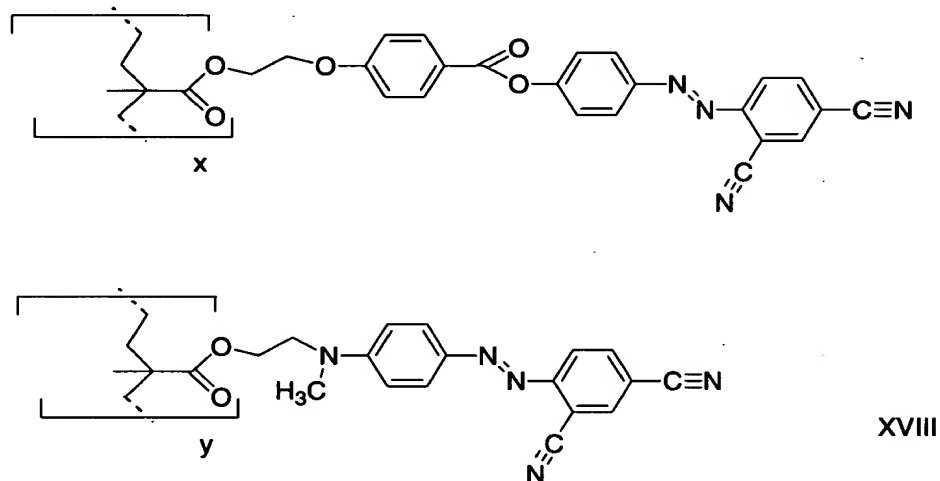
- (i) the absorption maximum of the dyestuff is at least one of, at least 30 nm less than 400 nm and at least 30 nm greater than 400 nm,
- (ii) at 400 nm the dyestuff reaches an optical density of not more than 60% of its absorption maximum,

- (iii) said optical recording material has the capacity for being rewritten on by changing the state of polarization of actinic light, an intensity of at least 80% of the original value being achieved after a deletion/rewriting cycle, and
- (iv) wherein at 400 nm, under identical conditions, an optical writing operation upon said optical recording material proceeds no more slowly than at 500 nm, and birefringence values induced during said optical writing operation do not differ from those birefringence values induced at 500 nm by more than 10%, further wherein said polymeric azo dyestuff is selected from at least one the group consisting of polymers represented by formulas XIV, XV, XVI, and XVIII[,] and combinations thereof, wherein formulas XIV, XV, XVI and XVIII are as follows,





and



p being between 10 and 1,000, and the molar ratio of x : y being between 10:90 and 90:10, and the sum of x and y being 100 mol%, and further wherein said optical recording material has a layer thickness of at least 1 mm.

Claim 2. (Previously Presented) The optical recording material of Claim 1 wherein the absorption maximum of the dyestuff is less than 370 nm.

Claim 3. (Previously Presented) The optical recording material of Claim 1 wherein the absorption maximum of the dyestuff is greater than 450 nm.

Claim 4. (Cancelled)

Claim 5. (Cancelled)

Claim 6. (Previously Presented) The optical recording material of Claim 1 wherein said optical recording material is optically written upon using electromagnetic radiation that is light in a laser wavelength range of between 380 to 420 nm.

Claims 7. – 10. (Cancelled)

Claim 11. (Previously Presented) A storage system comprising the optical recording material of Claim 1.

Claim 12. (Cancelled)

Claim 13. (Previously Presented) The storage system of Claim 11 wherein it also additionally comprises a reflection layer.

Claim 14. (Previously Presented) A process for the production of the storage system of Claim 11 wherein said process comprises applying the storage medium by spin-coating.

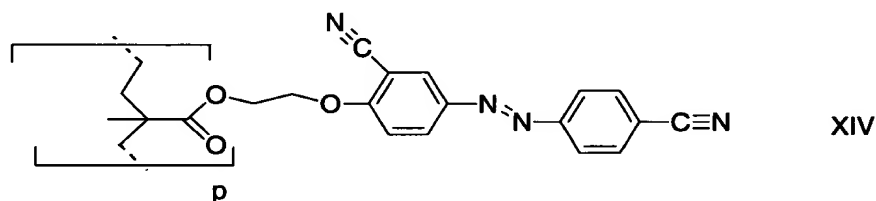
Claims 15-18. (Cancelled)

Claim 19. (Previously Presented) An optical recording material for at least one of binary, multibit and volume data storage, comprising:

- (a) at least one dyestuff selected from polymeric azo dyestuffs, said dyestuff changing its spatial arrangement upon irradiation with polarized electromagnetic radiation; and
- (b) optionally at least one grouping having form anisotropy,

wherein,

- (i) the absorption maximum of the dyestuff is at least one of, at least 30 nm less than 400 nm and at least 30 nm greater than 400 nm,
- (ii) at 400 nm the dyestuff reaches an optical density of not more than 60% of its absorption maximum,
- (iii) said optical recording material has the capacity for being rewritten on by changing the state of polarization of actinic light, an intensity of at least 80% of the original value being achieved after a deletion/rewriting cycle, and
- (iv) wherein at 400 nm, under identical conditions, an optical writing operation upon said optical recording material proceeds no more slowly than at 500 nm, and birefringence values induced during said optical writing operation do not differ from those birefringence values induced at 500 nm by more than 10%, further wherein said polymeric azo dyestuff is a polymer represented by the following formula XIV,



p being between 10 and 1,000.

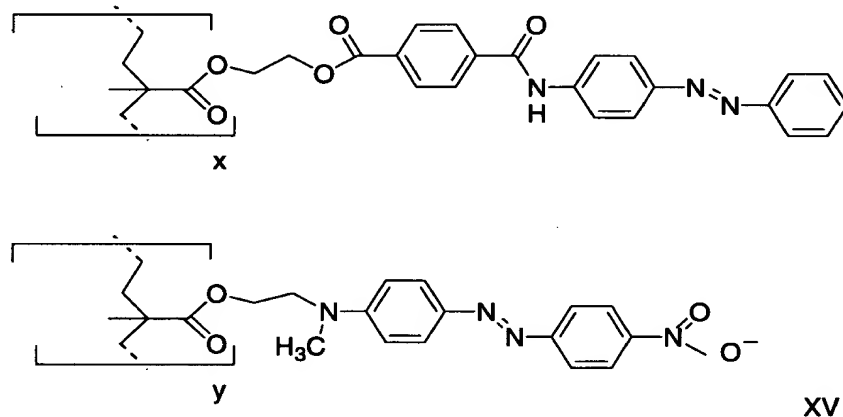
Claim 20. (Previously Presented) An optical recording material for at least one of binary, multibit and volume data storage, comprising:

- (a) at least one dyestuff selected from polymeric azo dyestuffs, said dyestuff changing its spatial arrangement upon irradiation with polarized electromagnetic radiation; and
- (b) optionally at least one grouping having form anisotropy,

wherein,

- (i) the absorption maximum of the dyestuff is at least one of, at least 30 nm less than 400 nm and at least 30 nm greater than 400 nm,

- (ii) at 400 nm the dyestuff reaches an optical density of not more than 60% of its absorption maximum,
- (iii) said optical recording material has the capacity for being rewritten on by changing the state of polarization of actinic light, an intensity of at least 80% of the original value being achieved after a deletion/rewriting cycle, and
- (iv) wherein at 400 nm, under identical conditions, an optical writing operation upon said optical recording material proceeds no more slowly than at 500 nm, and birefringence values induced during said optical writing operation do not differ from those birefringence values induced at 500 nm by more than 10%, further wherein said polymeric azo dyestuff is a polymer represented by the following formula XV,

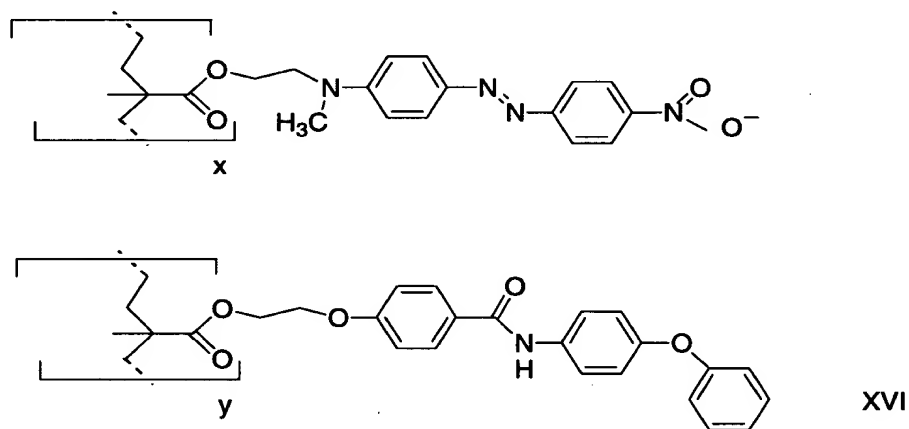


wherein the molar ratio of x : y is between 10:90 and 90:10.

Claim 21. (Previously Presented) An optical recording material for at least one of binary, multibit and volume data storage, comprising:

- (a) at least one dyestuff selected from polymeric azo dyestuffs, said dyestuff changing its spatial arrangement upon irradiation with polarized electromagnetic radiation; and
 - (b) optionally at least one grouping having form anisotropy,
- wherein,

- (i) the absorption maximum of the dyestuff is at least one of, at least 30 nm less than 400 nm and at least 30 nm greater than 400 nm,
- (ii) at 400 nm the dyestuff reaches an optical density of not more than 60% of its absorption maximum,
- (iii) said optical recording material has the capacity for being rewritten on by changing the state of polarization of actinic light, an intensity of at least 80% of the original value being achieved after a deletion/rewriting cycle, and
- (iv) wherein at 400 nm, under identical conditions, an optical writing operation upon said optical recording material proceeds no more slowly than at 500 nm, and birefringence values induced during said optical writing operation do not differ from those birefringence values induced at 500 nm by more than 10%, further wherein said polymeric azo dyestuff is a polymer represented by the following formula XVI,



wherein the molar ratio of x : y is between 10:90 and 90:10.